DOCUMENT RESUME

ED 307 199 SO 019 909

AUTHOR Moon, Russ
TITLE Oral Assessment in GCSE Economics. Research Papers in Economics Education, Number 14.
INSTITUTION London Univ. (England). Inst. of Education.
PUB DATE Nov 88
NOTE 35p.; Graphs may not reproduce clearly.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Achievement Tests; Comparative Analysis; *Comparative Testing; *Economics Education; Educational Certificates; Foreign Countries; Group Testing; Individual Testing; Response Style (Tests); Secondary Education; Social Studies; Test Format; *Test Interpretation
IDENTIFIERS *General Certificate of Secondary Educ (England); Great Britain; *Oral Examinations

ABSTRACT

Since the emergence of the General Certificate of Secondary Education (GCSE) there have been calls for improved methods of assessing economics. Oral assessment has been suggested as a possible technique and this study investigated whether it might be used to allow students to demonstrate achievement in GCSE economics. The empirical study compared students' performances on a GCSE specimen question given in both written and oral form. The results show that orals of this type would probably not play a useful role in GCSE economics. There were, however, indications of the types of oral questions which could be used. This might be informal, using a variety of stimulus materials with follow-up questions playing an important role. Examples of the oral and written questions and the context in which they were given are provided, as well as 15 tables and graphs of test data and a 16-item reference list. (Author/PPB)

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## ORAL ASSESSMENT IN GCSE ECONOMICS

by

RUSS MOON, B.A. (Econ), M.A.

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# Oral assessment in GCSE Economics

by

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Summary

Since the emergence of GCSE there have been calls for improved methods of assessing economics. Oral assessment has been suggested as a possible technique and this study investigates whether it might be used to allow students to demonstrate achievement in GCSE economics. The empirical study compares eight students' performances on a GCSE specimen question given in its written form and orally. The results show that orals of this kind would probably not play a useful role in GCSE economics. There were, however, indications of the kind of oral which could be used. This might be informal, using a variety of stimulus materials with follow-up questions playing an important role.

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# ORAL ASSESSMENT IN GCSE ECONOMICS

## Introduction

This study aims to explore the possibility of using orals as a means of improving the assessment technology presently adopted in GCSE economics. Orals have been used in other subjects, but there is little experience of using them in the assessment of economics understanding at this level.

In 1986 the Secondary Examination Council (SEC) guide for teachers in economics GCSE pointed out that:

> "The National Criteria for economics include, as coursework, orals and aurals. Examining groups may wish to avail themselves of this opportunity" (1)

In 1988 the report by the SEC Grade Criteria Working Party expressed the view that

> "considerable research and development is required..... to design and pilot appropriate opportunities for pupils to demonstrate their achievement in GCSE economics." (2)

The problem would seem to be worthy of investigation, and the findings to be of some practical and theoretical relevance, particularly since the London and East Anglian Group for GCSE has agreed that an oral assignment should count as twenty five per cent of its assessment of students for its Economics GCSE syllabus B.

The debate on assessment in economics education is a long way from conclusion. The SEC Grade Criteria Working Party, which in its report has done much to further and define the task in economics education, wisely recognised and conceded

> " the 'tentativeness of knowledge' about what young people do know and understand in economics at GCSE and indeed what they ought to know and understand" (3).

It regarded its report and conclusions

> "as a contribution to the debate" (4).

This study recognises that at this stage research can only add other data.

## Using orals to assess GCSE economics

This section draws on the work of others as it relates to the possible use of oral assessment in GCSE economics, in particular its use to provide opportunities for differentiation.

At this stage it would be useful to have a working definition of "oral assessment" or "orals". The National Curriculum Task Group on Assessment and Testing (5) suggest that any assessment task can be analysed in terms of three aspects or modes.

Borrowing from this classification, orals can be initially defined as assessment tasks where the methods of presentation (delivery of questions or stimulus), operation (working) and response (answers or references), are to some extent spoken. Other methods could be combined with orals to make a useful assessment task and only one mode or method could be spoken.

Oral assessment may be difficult to use as a method of gaining information about what young people know, understand and can do because it involves some kind of social interaction. This may distort communication and, more significantly, affect performance or how performance is perceived.

The assessor may consciously or unconsciously adapt treatment and behaviour in response to signals from the student, in turn affecting student performance. This is the "halo effect" where

> "an early impression (favourable or unfavourable) relating to just one aspect of a student's work will often be over-generalised." (6)

An assessor might, for example, react differently to a male student who appears to be from a "professional" family background than to a female student who appears to be from a "working class" family background. This may be beneficial to the student, as conditions could be created whereby s/he can demonstrate more easily knowledge, understanding and skills ( a form of informal differentiation through verbal and non-verbal communication). However, a first impression could just as easily result in an unfavourable change in student performance.

Rowntree cites research by Cazden (7)

> "illustrating that children's verbal expresiveness is diminished in encounters with an unfamiliar 'authority figure'" (8)

This kind of effect is difficult to control because communication in an oral assessment involves not only words but actions. As Goffman puts it:

> "The expressiveness of the individual (and therefore his capacity to give impressions) appears to involve two radically different kinds of sign activity: the expresssion that he *gives* and the expression that he *gives off*." (9)

Expressions given involve verbal symbols. These are hard to control because verbal language requires interpretation, and in an oral assessment it may be difficult to know how a student is interpreting what is being said.

Barnes gives an illustration of this problem in the context of in a biology classroom.

> "The teacher is talking about milk, using his specialist language to help him perceive it as an exemplar of the category "suspension" and to free him from all other categories and contexts it might appear in. But for the pupils "milk" collocates not with "suspension' but with "cheese", "school", "shook" and "bottle". They perceive it in that context and his use of "casein" and "fine particles" signals to only two of them that some different response is expected." (10)

This kind of problem is faced whenever words are used and does not only affect spoken communication. However, in an oral it may be possible to ask further questions, checking interpretation of verbal symbols and improving communication.

There are also problems when dealing with expressions "given off". These concern such factors as confrontation, learning and bias. The effects may be difficult to isolate and control.

Frith and Macintosh suggest that the

> "key to successful oral assessment is the avoidance of any semblance of confrontation. This is more likely to occur here than in any other forms of assessment since its conduct is based upon personal interaction between the assessor and the assessed, at a particular place and particular time." (11)

If confrontation diminishes a student's performance, and so the opportunities for differentiation, it should be avoided. But doing this might not be an easy matter, and signals may communicate themselves to the assessor and the assessed anyway.

If orals are carried out with pairs or groups of students competition may affect the outcome. Some may respond to a need to cut others down to size or do better by outshining them in the eyes of an assessor. Others may react to this kind of competition by diminishing their performance.

Pennycuick and Murphy note that the effect on motivation of providing a different kind of challenge for students (in this case graded tests with a high pass rate) is that

> "success in the form of 'doing better than others' must be replaced by success in 'acquiring skills' and 'passing

tests'." (12)

In GCSE, if there is a feeling among students that they are competing against each other to impress an assessor, group oral assessment may not provide opportunities for differentiation for all students.

A related problem might be that some play the system more confidently than others, cultivating assessors and fellow students in an attempt to improve perceived performance.

Rowntree quotes research by Miller and Parlett (13) in which these kinds of students are labelled "cue-seekers" because

> "they actively sought out cues by button-holing staff and they deliberately attempted to create a good impression. Cue-seekers tended to get the best degrees and cue-deaf students the poorest." (14)

Students skilled in picking up verbal and non-verbal cues might learn from these cues as the assessment takes place. Avoiding the problems posed by social interaction is not an easy matter, but they should be borne in mind when devising oral assessment instruments for GCSE economics.

One important practical problem posed by orals is that of recording performances. Audio and video-tape recorders might provide a solution, but hardware can intrude, information may be lost and interpretation be made only marginally less difficult. Transcripts might help, but they are time consuming, there is a loss of information and there remains the difficulty of interpreting what is left of the performance.

As Moorhouse points out

> "The dissimilarity between the written mode of language and engrossing informal talk is very great indeed, and such talk transferred to paper loses much of its meaning and most of its vitality and shape". (15)

The problem is that an oral performance is composed not only of words but also of hesitations, tonal changes, interruptions and so on.

Advantages of using oral assessment.

Barnes, in his article "Language, the learner and school" argues that one disadvantage of writing is that

> "the reply to it may be both delayed and restricted to a general comment or assessment." (16)

This may affect the ability of some students to demonstrate knowledge, understanding and skills because the kind of immediate feedback given in a social situation is missing.

Knight quotes the GCSE guide for teachers of English on feedback, where speakers

> "depend on signals of attention, support, comprehension and interest from their audience." (17)

The Grade Criteria Working Party for economics sees assessment

> "as a 'collaborative activity' designed to produce 'best performance'".(18)

If this view is accepted, orals may be useful in allowing best performance, because feedback can be rapidly provided to the student.

Though this may sound attractive it is not easy to do, as Knight warns:

> "to speak of 'feedback' being 'given to the speaker' is to disregard the fluidity of the relationship, the elusive and unobservable movement of understanding between speakers and listeners."(19)

This is a reminder of the problems of controlling social interaction outlined in the previous section.

Orals may also allow flexibility in the kinds of questions

asked, so that the assessor can be responsive to a student's performance in creating opportunities for differentiation. According to Willig, in his article on assessing oral performance in modern languages at ordinary level:

> "The 'conversation' is, if well executed, essentially flexible, probing and wide-ranging: it can change emphasis and direction in accordance with the individual candidate's responses and needs." (20)

Dialogue may also allow students to ask questions as they attempt to comprehend a test situation facing them.

Finally, orals may allow students with poor written ability to express themselves more effectively. Kourilsky, in her research into children's use of cost-benefit analysis, used an interview

> "to control for differences in subject's reading ability, to diminish the possible threat of a test-like situation, and to allow young subjects the leeway to express complex ideas without being constrained by their limited written ability." (21)

Freeing students from the constraints of their written expression may be one of the most important contributions oral assessment can make in allowing opportunities for students to demonstrate what they know, understand and can do.

## The Research Study

Each subject took the same assessment twice, testing the same knowledge, skills and abilities each time. Stratified sampling by ability exerted some control over the composition of the sample. Subjects were paired using a verbal reasoning test.

The mode of first and second test (written and oral) was alternated between members of each pair. Across the sample, possible effects of exposure to the first mode of test on the second might thus be counteracted. The difference between the mean sample scores on each type of test could be tested for significance using a "t" test, which could also assess the significance of the subjects having taken the test previously.

Subjects who were undertaking a course in GCSE economics but who had not been taught by the researcher were used. In order to cancel the possible influence of different teachers, all students had been taught by the same teacher, though the sample was taken from two different classes. The school was a mixed ability comprehensive in central Essex.

It is not possible to know whether the two classes were representative of the whole school population. Consequently it is recognised that it would be difficult to generalise the findings of this research to the whole population.

All students were at the end of the first year of a two year economics GCSE course during which time they had covered regional policy and unemployment, amongst other topics. By agreement with their teacher, a question from the Northern Examining Association's specimen paper was chosen as being one which would enable the students to demonstrate something of their knowledge, skills and achievements in GCSE economics. It was also a question none had seen before in mock examinations or lessons. The question is discussed more fully later and is shown in appendix 1.

The total population of students from which a sample was taken was 45. Of these 8 were chosen for testing. In order to ensure that a reasonably wide range of abilities was represented, the sample was stratified by performance in a verbal reasoning test taken by all students in their first year at the school. This test gives a "verbal reasoning quotient" (V.R.Q.) expressed as an index number.

The range in the population of students to be sampled was from 82 (lowest V.R.Q.) to 138. This test may not reflect ability in GCSE economics but it provided independently collected information about the subjects.

The students were to be divided into four pairs, each with the same or similar V.R.Q. One of the pair would take the oral first and the other the written first. Each pair was to be chosen from the total group according to the following table:

Pair One. V.R.Q. as close as possible to 130.
Pair Two. V.R.Q. as close as possible to 115.
Pair Three. V.R.Q. as close as possible to 100.
Pair Four. V.R.Q. as close as possible to 85.

Where there was a choice to be made between students with similar V.R.Q.'s, this was done by drawing names at random from the sample. A coin was then tossed to decide which student in each matched pair would take the oral first and which the written.

No account was taken of other sources of variation such as background and gender. Following this procedure, the pairs were as follows:

Pair one consisted of two girls both with a V.R.Q. of 130.
Pair two consisted of two girls both with a V.R.Q. of 112.
Pair three consisted of two girls both with a V.R.Q. of 105.
Pair four consisted of a boy and a girl. Both had a V.R.Q. of 86.

Consequently each pair was matched completely by V.R.Q. though the interval between pairs was not quite the same as the one in the table because it was not always possible to find pairs at the levels indicated there.

It is interesting to note that there was only one boy in the sample, though out of a population of 45, nearly half were boys. This may reduce the validity of the method because gender could be a source of variation.

As was mentioned earlier, the test was a question produced by the N.E.A. as part of a specimen examination paper for GCSE economics. It was one of a group of longer questions on the paper and was based on a case study involving data response.

The N.E.A. examination is divided into two sections, worth a total of seventy per cent of the marks for the GCSE. (The rest of the marks are allocated for a coursework component). Section A is worth fifteen per cent and is composed of short answer questions mainly designed to assess

> "recall of knowledge in relation to the syllabus content. Ability to explain appropriate terminology and to interpret data will also be assessed." (22)

Section B is worth fifty five per cent and is composed of between four and seven questions (in this case four) of the structured/essay type, including data response. The whole examination paper is designed to test all assessment objectives outlined in the National Criteria for GCSE economics.

The second section is designed to test the following objectives:

> " (b) use this knowledge in verbal, numerical, diagrammatic, pictoral and graphical form;
> (c) explain and apply appropriate terminology, concepts and elementary theories;
> (d) select, analyse and apply data;
> (e) distinguish between evidence and opinion, make reasoned judgements and communicate them assurately in a logical manner." (23)

By choosing one question from this section there is an in-built bias to the research, the effect of which is difficult to quantify.

It could be argued that the question is a poor proxy for economics at GCSE. It was chosen for its case study/data response format and because it was based on knowledge and content which had been "covered" by the students during the year. Other questions from specimen examination papers produced by the other GCSE boards were also based on familiar content, but had been seen by the students previously.

A standardised procedure was adopted throughout the testing process. This applied, as far as possible, to all conditions including timing, instructions, environment and recording of performances.

Permission to release students from lessons was obtained from the Headmaster and from individual subject teachers, who were asked not to reveal this information to their students.

All students were issued with standardised instructions by their teacher one day before the tests began. In order to reduce discussion between students, they were seen individually.

Information was kept to a minimum - time, location and purpose of the test. The instructions were given in a reasonably informal way so that subjects were not made too nervous, and used the following format.

> Tomorrow, in lesson (1,2,3,4) you have been chosen to take a test to try out some new GCSE Economics questions.
>
> The test will take all of lesson (1,2,3,4)and will involve a written and an oral paper.
>
> When the bell goes, go to room A7 instead of your normal lesson. Your teacher has been told.
>
> There is no need to do any revision before the test and it will not count towards your GCSE.
>
> Have you any questions ?

All students agreed to take the test.

Two identical rooms were used, in an annex away from the main school buildings. These rooms were traditionally used for small group examinations and as A levels had only recently finished they were still out of bounds to the rest of the school. Access was restricted and the doors had "examination in progress" signs on them.

The inside of each room was made as similar as possible. Both had examination board "rules and regulations" posters and a clock. A table was placed in the centre of each room with a calculator and examination board spare sheets. There was a deliberate attempt throughout to give the tests the feel of a public examination at the school.

The room to be used for the written test was chosen by tossing a coin. The room to be used for the oral was also to be used to brief the pairs before the test started and so had three chairs around the table - one for the assessor, and two, facing, for the students. A small interview tape recorder was used to record each briefing and oral assessment. This may have increased anxiety or prompted a more dramatic performance. However, it was considered preferable to writing down comments - a method which intrudes more and records less of the performance. The use of a video camera was impracticable.

When the first student arrived, s/he was met at the door with a standard greeting. (Throughout the testing students instructions were standardised).

> "Good morning/afternoon. Could you wait here until the other candidate arrives."

They were then left outside. In two cases the pair arrived together, so they may have discussed the test beforehand. This happened with pairs one and three.

Students were asked to enter in the following way:

> (Door opened) "Right, would you like to come in. Could

you sit on the two chairs over there".

The assessor then sat down in the chair opposite and gave each student an instruction sheet. This was read to the two students and stated the following:

"Thanks for agreeing to take part in this test.
This will not count towards your GCSE.
(Name) will take a half hour written test followed by a half hour spoken test and (name) will take a half hour spoken test followed by a half hour written test.
You will do the same question each time.
In the written test you may finish before the end of the half hour. Go back over the questions to see if you can add anything to your answers.
In the spoken test if you finish before the end I will ask you if you want to go back over the question to see if anything can be added to the answers.
The spoken test will be recorded on this small tape recorder.
A calculator is provided in each room.
Have you any questions ?."

None of the subjects had any questions. The one to take the written paper was then instructed in the following way:

"Right, (name), here is the written paper. Take it through into the other room. Put your name on the front sheet and read the instructions. Come back in in half an hour. You will find there is a calculator on the desk and spare paper if you need it."

When the first subject had left, the second was given a copy of the question with a covering sheet for the oral.

The tape recorder was started and the instructions read through.

The subject was told:

"Here is some scrap paper. You may use it if you wish to and here is the calculator."

The instruction at the start of the question was then read followed by the data "End of the Line for Northern Shipbuilders". The text was read first, followed by the map and the table showing percentage of workers unemployed by region.

The map was described in the following way:

"Then there is a map showing the North, North West, Yorkshire and Humberside, Wales, West Midlands, East Midlands, East Anglia, South West and South East".

The table was described as follows:

"Then there is a table showing percentage of workers unemployed by region in England and Wales. In the North it was eight per cent in 1977 and eighteen per cent in 1984. In Yorkshire/Humberside it was six per cent and fourteen per cent..."

Each area was outlined. Finally the source was quoted.

The data having been read to the student the first question was asked in the following way:

" The first question is worth four marks and is - (a) What reason does the reporter give for the decline in shipbuilding in the North ? "

No other comment was made until the subject indicated that the next question should be asked. The comment:

"Shall we go on to the next question ?"

was used when appropriate. For each question the subject was told how many marks it was worth and then read the question. When the last question had been read, the oral section was completed. If this was before the end of the half hour the candidate was asked to wait, without the question paper.

At the changeover the students were not allowed to communicate. The same procedure for the oral and written tests was then

repeated with the other candidate. When the tests had been completed the students were thanked and asked not to discuss the questions with anyone else until the next day.

Analysing the responses

The oral responses were transcribed and marked using the same scheme as the written responses. The marking scheme provided by the NEA is reasonably detailed, but for the purposes of this work further details were added to improve the reliability of its assessment. This involved a certain amount of interpretation with respect to allocation of marks.
Appendix 2 contains a copy of the scheme provided by the Board.
Question (a).
The marking scheme stipulates that two marks be given for listing the reasons given in the data and two marks for explaining the implied relative failure of UK firms.
The first two marks were divided into two half marks and one other mark. The second two marks were also divided, so the revised marks scheme was as follows:
(i)Comprehends the reasons given in the data:
(a) competition from abroad - overseas orders lost (.5)
- UK orders lost (.5)
(b) declining shipping fleet (1)
(ii) Explains implied relative failure of UK firms to organise:
(a) cost effective production ( machines and labour relations) (1)
(b) delivery on time (1)
Question (b)
The second two marks were divided into two single marks.
The revised marks scheme was as follows:
(i) Shows evidence of comprehending the writer's gloomy prediction. (may not use the word "gloomy") (1)
(ii) (a) UK demand for ships is falling (1)
(b) UK shipbuilders need to improve their *relative* competitiveness (1)
Question (c)
This question posed rather more problems. The sample marking scheme can be interpreted as categorising performance in two 'levels'. For two marks, students would demonstrate an *elementary* appreciation of how cutting the workforce might reduce costs , given the reduction in output. For three extra marks students were expected to give a *clear explanation* of this relationship using *appropriate terminology*.
As well as the difficulty of interpreting responses in these terms, the range of marks causes difficulties. Is one mark out of five to be given to a student who has demonstrated a slightly less than elementary appreciation of perhaps part of the relationship, while four marks out of five be given to a candidate who has used some appropriate terminology in a reasonably clear explanation?
One problem of using marks to describe performance is that clear criteria have to be set for the award of marks and in this case it is not easy to set the levels. They are not discrete but continuous.
In the final analysis, the following marking scheme was used:
(i) appreciation of relationship between number of workers and costs of production (1), output (1)
(ii) use of terminology such as costs, output, production, mechanisation, competition. (1 mark each - max 3)
Question (d)
There are only two possible correct answers to this question -

coal mining or iron and steel. ( 1 mark for either answer.)

Question (e)

There is only one possible correct answer to this question - an indication that the percentage increased. (1 mark)

Question (f)

Like question (c), this marking scheme is expressed in terms of levels, but again they are not particularly helpful.

'Some attempt to provide a plausible explanation' for the fall in the numbers employed receives two marks. A better explanation would presumably provide a plausible explanation, demonstrating some economic understanding, but it would also draw on the shipbuilding example. This would receive four marks. It seems somewhat arbitrary to say that a candidate who provides an original and plausible explanation should get less marks than a candidate who uses the shipbuilding example in a comparison.

A "well argued response" supported and justified by clear reasons should get more marks if it displays more economics, but this description is not helpful in assisting the assessor to recognise what more economics is.

The marking scheme used was as follows and draws on the introduction to this question's marking scheme rather than the scheme itself:

(i) Relative failure of industry to compete due to
- failure to innovate (1)
- poor labour relations (1)
- poor working practices (1)

(ii) Rationalisation of the industry
- introduction of new technology (1)
- weakening of unions (1)

One mark if the reason is poorly explained or does not use appropriate terminology. More marks for use of terminology and explanation of the relationship between reason and fall in employment in the industry. (maximum 6)

Question (g)(i)

The marking scheme is very specific about how the second of the two marks for this question should be awarded. However, the first mark is given for 'some assessment indicating success or failure'. This presumably means more than a student simply saying 'it has failed' or 'it has succeeded'.

In this case, assessment surely means there should be some demonstration of judgement and weighing of evidence. But this would require discussion of the data highlighted in the introduction to the question, which is what the second of the two marks is for. Again the marking scheme is difficult to interpret satisfactorily.

In the event, the marking scheme was interpreted in the following way:

(i) Assessment of success/failure supported by argument (1)
(ii) Argument supported by evidence from data (1)

Question (g)(ii)

Though the marking scheme is reasonably clear it seems a little unfair to expect students to illustrate their reason when they have not been asked to do so in the question. However, it could be argued that an illustration supports the reason with evidence (however anecdotal).

The marking scheme was interpreted as follows:

Reason for failure: (max 1 mark)
(i) Evidence of appreciation of difficulties in persuading firms to move from the South East (1)
(ii) Weakness of regional policy measures (1) OR

Reason for success: (max 1 mark)
(i) Strength of regional policy measures (1)
(ii) Evidence of appreciation of firms' willingness to move from

South East due to such factors as shortage of labour, and congestion. (1)
(iii) Illustration to exemplify reason (1)

Question (b)
The marking scheme for this question recognises that "no one answer is expected in response to this question" and that a range of responses is possible. The skills to be assessed are outlined but unfortunately sample responses are not given. Consequently interpretation of these skills in terms of responses to this question are required. This is by no means an easy task.
The difficulties of assessing responses are increased because marks are allocated for the demonstration of groups of abilities and there is no indication as to how these marks are to be divided between the abilities.
The marking scheme can be analysed in sections.
The first four marks are for showing some skill in three abilities. Recalling and applying knowledge about "influences on labour mobility and regional differences" are abilities which can be grouped together. "Applying data in the stimulus" would seem to be a slightly different skill.
For this section the marking scheme was interpreted as follows:
(i) Recall knowledge about
influences on labour mobility (2)
regional differences (2)
(ii) Apply this knowledge to this case (2)
(iii) Apply data in the stimulus (2)
There are four marks for this section, which could be gained by showing ability in section (i) only. On the other hand, the same mark could be gained by showing some ability in each of the sections.
The second group of four marks is for demonstrating ability in two related areas. The first ability is concerned with categorising the comparative merits and demerits of each course of action, while the second stresses being able to consider the implications of moving or staying for each member of the family.
The board's statements were interpreted and detailed in the following way:
(i) Compare an advantage/disadvantage of leaving with an advantage/disadvantage of staying in the North ( 1 or 2 for each comparison)
(ii) Grouping similar factors into a category (1 or 2 marks for each category)
(iii) Discussing the implications from the point of view of
(a) Jim Smith (2)
(b) Wife (2)
(c) Children (2x2)
As there are a maximum marks of 4 marks for this section, it is again possible for a student to gain them in a variety of ways.
Interpretation of the final statement on the marking scheme probably poses more problems than any. The intention is to see whether the candidate has demonstrated the ability to "analyse the meaning of the term 'best' from an economist's point of view".
The NEA syllabus provides some help in interpreting this statement and the section on "scarcity" would seem to be the most relevant, with its mention of choice and opportunity cost.
The question states that that the answer must outline the factors
" the Smith family would have to consider before reaching a decision that is best *for them* (my italics)."
It could be argued there is no need for the candidate to discuss

the meaning of 'best' from an economist's viewpoint, i.e. for " firms, government and society as a whole". (24)

"Best" here is interpreted as being discussed from the point of view of the Smiths as a household rather than in broader terms. The factors an economist might want to consider include whether benefits and costs accrue in the short or long run and whether the costs and benefits are money or non-money (opportunity) costs. An economist might go on to consider whether "best" choice means the one which will result in the highest money gain, the lowest risk, or the most utility (however defined). In some ways the question "Best for whom ?" has been answered, because it must be "best for them" (the Smiths).

However, within the family, a particular solution may not be best for everyone. This is a fairly sophisticated level of argument, but for the purposes of the marking scheme it must be translated into statements which can be recognised in students' responses.

This was done in the following way:

(i) Discusses the importance/ problems of assessing
  (a) money costs (2)
  (b) non-money costs (2)

(ii) Discusses the implications of short/long run analysis (2)

(iii) Discusses the alternative interpretations of best such as most income, safest or most utility (2 for each)

(iv) Explains the significance of the "Best for whom" question for the family (4)

Again it is possible for a candidate to gain maximum marks in a number of different ways given this interpretation.

Though this marking scheme is much more detailed than the one provided by the Board, there would still seem to be a strong possibility that each of the resposes will not be marked in the quite the same way. The Board itself states in the preface that the marking scheme

> "is a preliminary draft and that operational marking schemes are subject to amendment after the perusal of candidates' scripts at the examiners standardisation meeting."

The scripts were marked by the researcher alone. However, each script was marked twice to try to reduce error.

Table 1 Results of Oral and Written Tests

| Sub | VRQ | Mode | Question | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | a | b | c | d | e | f | g(i) | g(ii) | h | |
| *Max. mark:* | | | *4* | *3* | *5* | *1* | *1* | *6* | *2* | *2* | *12* | *36* |
| 1 | 130 | O | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 5 | 16 |
| 1 | | W | 1.5 | 2 | 1 | 1 | 1 | 4 | 2 | 1 | 7 | 20.5 |
| 2 | 130 | W | 3.5 | 2 | 1.5 | 1 | 1 | 2 | 2 | 1 | 4 | 18 |
| 2 | | O | 3.5 | 2 | 2 | 1 | 0 | 2 | 2 | 1 | 4 | 17.5 |
| 3 | 112 | O | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 7 |
| 3 | | W | 0.5 | 1 | 0.5 | 1 | 1 | 1 | 1 | 0 | 4 | 10 |
| 4 | 112 | W | 0.5 | 0.5 | 3 | 1 | 1 | 3 | 2 | 0 | 3 | 14 |
| 4 | | O | 1 | 1.5 | 2 | 1 | 0 | 2 | 2 | 0 | 5 | 14.5 |
| 5 | 105 | O | 1.5 | 1 | 2 | 0 | 0 | 2 | 2 | 2 | 6 | 16.5 |
| 5 | | W | 2 | 1.5 | 4 | 1 | 1 | 4 | 2 | 2 | 8 | 25.5 |
| 6 | 105 | W | 1 | 1 | 2 | 1 | 1 | 3 | 2 | 1 | 6 | 18 |
| 6 | | O | 1 | 1 | 2 | 1 | 0 | 3 | 2 | 1 | 6 | 17 |
| 7 | 86 | O | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | | W | 0.5 | 1 | 2 | 0 | 0 | 2 | 2 | 0 | 1 | 8.5 |
| 8 | 86 | W | 0.5 | 1 | 1 | 0 | 0 | 3 | 2 | 0 | 1 | 8.5 |
| 8 | | O | 0.5 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 4.5 |

Note: Written (W) and oral (O) test results are shown in the order in which the tests were taken.
Sub = Subject number. VRQ = Verbal Reasoning Test score.

Analysis of results

This section is concerned with presentation and initial analysis of the results of the testing. Scores are discussed by subject. The next section deals with scores by question and by ability. Table 1 summarises the results.

There are a number of ways the results in Table 1 can be analysed. One way is to compare the total written and oral scores for the whole sample. Of course, subjects took either test first or second and there may have been a 'practice effect". Pairing the subjects by ability and the alternating the mode of first and second test could have counteracted the effects to some extent.

The average oral total for the sample was 11.6 compared to an average written total of 15.3. There is a difference but it would be useful to know if the two averages are significantly different. A "t" test can be used in this instance.

The resultant value of "t" is 1.155, so there is between a 50% and 25 % probability that the two sets of total scores are drawn from the same population. It would therefore seem that the difference between the mean oral and mean written sample scores is not statistically significant.

This preliminary analysis does not seem to provide evidence that this kind of oral enables students to demonstrate more in terms of the objectives of GCSE economics. However, it is interesting to note that the score on the oral test was lower.

The results in Table 1 can also be used in analysing the possible "practice effect" on the two modes of testing. Table 2 shows the results of such an analysis.

---

Table 2. Analysis of total oral and written subject scores by mode of first and second test

| Oral total scores | | Written total scores | |
|---|---|---|---|
| Oral first | Oral second | Written first | Written second |
| 16.0 | 17.5 | 20.5 | 18.0 |
| 7.0 | 14.5 | 10.0 | 14.0 |
| 16.5 | 17.0 | 25.5 | 18.0 |
| 0.0 | 4.5 | 8.5 | 8.5 |
| Mean 9.875 | 13.375 | 14.625 | 16.125 |

---

For both modes of test, the mean of the total scores for the sample is higher where the test has been taken previously. Again the "t" test helps to judge whether this difference is statistically significant.

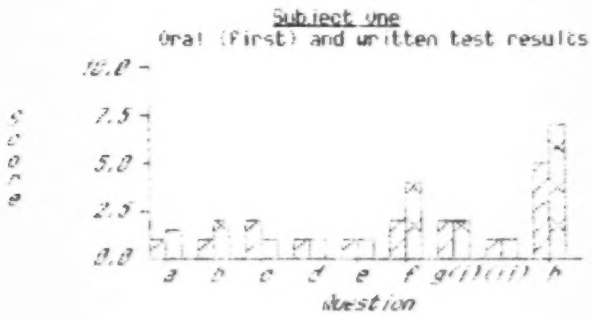
For the oral test the value of "t" is 0.702, giving between a 50% and 25% probability that the two sets of oral scores are drawn from the same population. There would not seem to be a statistically significant difference between the scores of those who have taken the oral test first or second.

Analysis of the results of the written test produces a similar result. The value of "t" is 0.320, so there is again between a 50% and 25% probability that the two sets of oral scores are drawn from the same population. There would not seem to be a statistically significant difference between the scores of those who have taken the written test first or second.

It would seem from this analysis that the "practice effect" is not important enough to be statistically significant.

This section is concerned with quantitative and illuminative analysis of individual responses. Subject one got a 25% higher

total score in the written test than in the oral, which was first. This higher score can be accounted for by learning from one exposure to the question to another.
Graph one shows that on four occasions subject one scored more highly in the written questions, on four occasions the scores were the same, and on one occasion, in the answer to question (c), the subject scored more highly in an oral question. In fact, the written answer to question (c) was longer than the oral answer (76 written words to 55 spoken), but the oral answer used terminology more effectively.




Generally it was noticeable that the written answers were more clearly expressed. Perhaps this is because a spoken answer which has been fully transcribed includes a verbal expression of the thought process, with all its "um's" and restatements of arguments. For example, subject one said the following in her answer to question one:

> "They have lost orders to countries which have developed-um-more modernised machinery and better-cheaper labour. Britain's industry is declining so it's not good enough. But they have improved things, but other countries have as well"

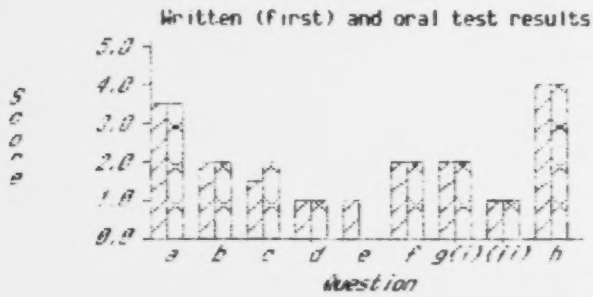
The expression improved in the written answer. Here is the first part, with the same ideas expressed more clearly :

> "Britain has lost orders to other countries which have newer machinery and better labour relations. The shipbuilding industry has declined because of foreign competition Britain couldn't keep up with."

The first answer gets half a mark for mentioning the overseas competition and its "more modernised machinery", and half a mark for the poorly expressed idea in the last sentence that the UK firms have not improved enough. So the total mark is one. The second answer gets one mark for mentioning the better labour relations as well as the machinery and half a mark for the idea that Britain "couldn't keep up" with foreign competition. So the total mark is one and a half.
It could be that expression improved because the student was more familiar with the data, or was less nervous about the experiment. It could also be that for this student written expression is a more favourable medium than the kind of oral used here, though there is only anecdotal evidence to support this idea.
Subject two gained a higher mark for her written responses, even though they were made first. This is surprising because one

would expect the second response to benefit from learning.
It could be argued, though, that the student may have been less interested in doing well when the novelty of the first exposure to the questions had passed. It is also the case that the difference between total scores is only half of one mark.
Graph two shows that on most (seven) occasions, the scores were the same. On one occasion the written score was higher than the oral score (question e) and on one occasion the oral score was higher.

Graph 2 Subject Two



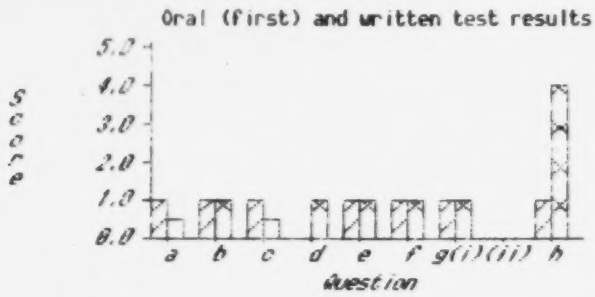

The difference in the scores for question (e) was due to a mistake in interpreting the question in the oral, so the subject got the answer right first time round and did not repeat this correct answer. The written answer to question (e) was:

"The average percentage has risen from 6.44% to 13.44%, it has more than doubled." The oral answer was:

"In most areas it has more than doubled." The written answer was correct and gains one mark. In fact, there is evidence that it is a better answer than expected because the student calculated a correct (though not weighted) average for unemployment *as a whole* in each year. In the oral answer it seems as though the question was not interpreted correctly, because the answer stated the change 'in most areas' rather than as a whole. For this reason no mark was awarded.
Could it be that in the oral test the student felt more pressure to give a quick response and not to read the question again? It may have been that re-reading the question in front of the examiner would have caused an embarrassing silence and may also have implied that the examiner had not read the question clearly enough in the first place. This is similar to an interviewee asking an interviewer to repeat a question, or a student in class asking the teacher to do the same thing. It may well require a less formal relationship between the two sides in the interaction before the student can feel able to ask questions of the 'questioner'.
It is also interesting to note that the student did not repeat the use of the calculator. Again this would have required the questioner to wait in silence for some length of time. There may also have been nervousness at the prospect of being watched while making a calculation.

Subject three scored a 43% higher mark on the second, written test. Graph three shows that on most (five) occasions, the scores were the same. On two occasions, the oral score was higher than the written and on two occasions the written score was higher than the oral.

Graph 3 Subject Three




The largest difference in scores was on question (h). The oral (first) answer to this question was as follows:

> "Well, could he guarantee that if he moved to the South East would he get a job ? He might not get one, um...have they got enough money to do that ? Then again if he stays at home he probably won't get a job so....."

The written answer was much longer (96 words) and received four marks. The response just goes on to the second available answer page. Perhaps the size of the space was an indication for the student of how much had to be written. In the oral it is difficult to remember or know how much has been said.

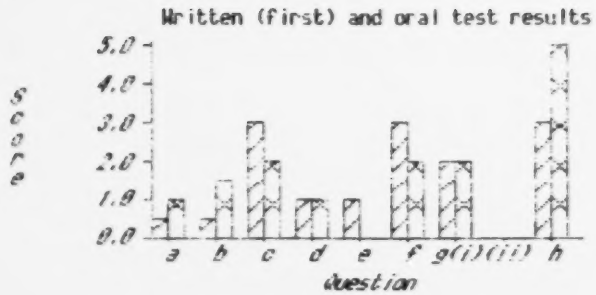
The oral answer received one mark for showing evidence of a rudimentary comparison of the advantages and disadvantages of leaving or staying. The response was difficult to diagnose. Did the student mention moving costs when she said "have they got enough money for that?" or was she thinking about having enough savings to survive for a while without a job in the South East ? The student cut off in the middle of an argument (there was a gap of ten seconds before the questioner asked "Do you want to go on to the next one ?") and it is impossible to diagnose what she was thinking.

It is unfortunate that, for the purposes of differentiation, it was not possible to ask supplementary questions to find out more about the candidate's knowledge, skills and abilities. For example, a prompt such as "If he stays at home he probably won't get a job so..." might have enabled the student to pick up the thread of the argument and continue with the answer. This prompt would have been "neutral" in the sense that it would not have given away any answers. With a written response it is much easier to pick up an argument after referring to data. This could be an important role for the assessor.

Subject four gained a 4% higher overall mark on the second, oral test, indicating that the candidate was unable to demonstrate much more on the oral test.

Graph four shows that on three ocasions the scores were the same, and on three occasions the second, oral scores were better. Perhaps more significantly, there were three occasions when the first, written score, was higher. This happened on questions (c) (e) and (f).

Graph 4 Subject Four




The written answer to question (f) was as follows:

"It is being done by machinery. Men are being trained to do more than one job. Not manufacturing as many goods.'

The oral answer was:

"They can get machinery to do it all and so they don't have to employ as many people or they can get one person to do different jobs so they still don't have to employ as many people."

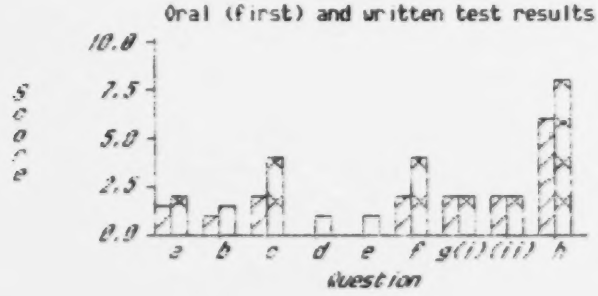
So although the oral answer was longer it received less marks. The main difference between the two answers is that the first answer mentioned the reduction in production as a possible cause. However, the second answer could arguably be awarded two marks for each point (rather than one) because it

"has an explanation of the relationship between the reason and fall in employment in the industry" (mark scheme)

This would mean that the oral response would receive four marks, one more than the written one. This discussion highlights the relative unreliability of the marking system and scores generated from it.

Subject five got a 54% higher mark on the second, written test. Graph five shows that on most occasions (seven), the written score was higher than the oral one and on two occasions they were the same. There were no questions where the oral score was higher than the written one.

Graph 5 Subject Five



In the oral answer to question (f), there was an opportunity to use a follow-up question. In the last part of the answer the student said:

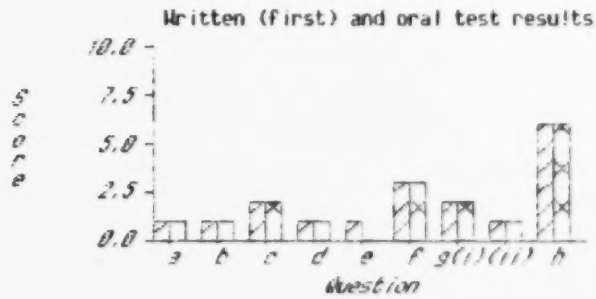
> "we are getting a lot of imports in from other countries so that we don't really stand a chance because their quality is a lot better than ours."

This answer did not explain the relationshp between the reason for the fall in the numbers employed (lower quality of UK cars) and the effect. This does not mean that the student did not know the reason - but there is no evidence of it in the performance. A supplementary question such as " How does the point that their quality is a lot better than ours lead to a fall in the numbers employed ?" would merely have restated the student's reason and the relevant part of the question. It should not be regarded as help, but it might have enabled the student to demonstrate more of what she knew, understood or could do in terms of the marking scheme.

Subject six, like subject two, gained a higher score for the written responses, even though they were made first. Again this is surprising, as one might expect the second score to be better. However,as before, this could be accounted for by lack of motivation when exposed to the questions for the second time. Again the difference between the marks was small, this time only one mark or 5.5% of the first score.

Graph six shows that on all but one occasion, the scores were the same and on one occasion (question e) the written score was higher.

Graph 6 Subject Six




Though the marks for most questions were the same, it is a mistake to assume that the answers were also the same. For example, the written (first) answer to question (a) was as follows:

> "In the countries abroad they have been able to get new machinery and been able to keep costs down. Orders from other British shipowners have been lost because of the other competition, also up to date machinery has been introduced and so the work force has been cut."

This answer received one mark for its mention of overseas competition and the loss of orders from UK shipowners. Incidentally, no mark was given for the idea that introduction of machines had cut the workforce, though perhaps it should have been. Once again this indicated a source of unquantifiable error.

The oral answer was as follows:

> "That, um, they have introduced, like, up to date machinery

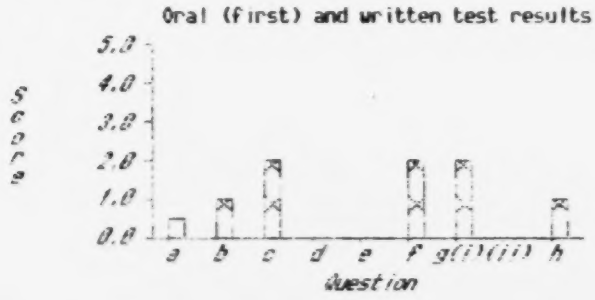
and there has been, like, a decline in the actual shipping fleet and they have got new ways of working with the machines . The machines have had to do the work - they have had to cut out the workforce because the machines are able to probably fulfil the jobs that the men could do"

This answer also received one mark, but this time for its mention of the "decline in the actual shipping fleet". Again, the significance of mechanisation is outlined but no mark is given.

Many of the other pairs of answers were also different. It would have been interesting to have asked supplementary questions in the oral, particularly to clarify the meaning of the "they" in a number of the statements. Questions like "Who has introduced up to date machinery ?", "Who has got new ways of working with machines ?" and "Who has had to cut the workforce?" may have enabled the student to demonstrate more but would not constitute undue help. They are simply restatements of parts of the response in question form.

Subject seven was the only male. He scored no marks on the oral test and 8.5 on the written, which was second.

Graph 7 Subject Seven




In the oral this student gave an answer to only two of the nine questions, questions (e) and (g)(i). It is worth examining the whole transcript for the oral test, which was as follows:

| | | |
|---|---|---|
| (a) | PAUSE. | *"Shall we go on to the next question ?"* |
| (b) | PAUSE. | *"Shall we go on to the next question ?"* |
| (c) | PAUSE. | *"No..Go on to the next one?"* |
| (d) | PAUSE. | *"Go on?"* |
| (e) | PAUSE. | "Doubled." PAUSE. *"Shall we go on?"* |
| (f) | PAUSE. | *"No. OK."* |
| (g)(i) | PAUSE. | "I don't know that one." PAUSE. *"Next one?"* |
| (g)(ii) | PAUSE. | *"Next one ?"* |
| (h) | PAUSE. | *"OK. Right."* |

Note. The letters show where a question was asked.
Words in italics are the interviewer's.
Underlined quotes show words spoken by the subject.
This transcript starts after the data had been read through.

It is interesting to note that the interviewer did not keep to the intended responses following a pause, so that after the first three pauses the responses became a little less formal and perhaps more encouraging to the student. The only answer given was incorrect, though it did indicate the student had understood that unemployment had risen.

There are a number of possible reasons why the student answered

only twice. He may not have understood the data or the questions, perhaps because they were read through too quickly. The interviewer could not know whether any of the subjects found the reading speed too fast. The data and questions were read at a speed which felt comfortable to the interviewer, and the questions were not repeated.

The subject could have been irritated at having to take the test and may have decided to be as unhelpful as possible. Alternatively, he may have been nervous at the prospect of speaking in front of someone he did not know, who was in an authority position.

A final possibility is that this student simply did not know the answers. However, the performance in the second test, which demonstrated some knowledge and understanding, would seem to militate against this idea. It may have been the result of learning between tests, though this would have been made more difficult because the stimulus material was removed after the first test.

In the written test, the student responded to all but one question and demonstrated some understanding of the issues involved, scoring 8.5 marks out of a possible 36, or 24% of the total.

In question (a), for example, the answer was as follows:

> "Because Japan and Sweden are making better ships than the British so the British are going out of Business because people are buying Sweden and Japan ships."

From this statement it is possible to diagnose that this student had some understanding of the main reason given by the reporter ie the comparative failure of UK firms to make ships as good as the competition from abroad. The expression was a little weak and some interpretation was required, but the student translated the argument into his own words, so it is likely that he understood it.

The answer to question (e) was similar to the one in the oral and states:

> "it doubled in some places."

This was again incorrect, but this time because it did not answer the question. It did, however, show some understanding of the data.

The answer to question (g)(i), which was answered with "I don't know that one" in the oral, was:

> "I don't think it has succeded. because the unemployment has doubled or over."

If the student did not know the answer in the oral test then the improvement could well be due to learning. It could also be that the candidate found it easier to assimilate the question and data in the written test, when the reading speed was controlled by the candidate. The answer again demonstrated some understanding of the issues.

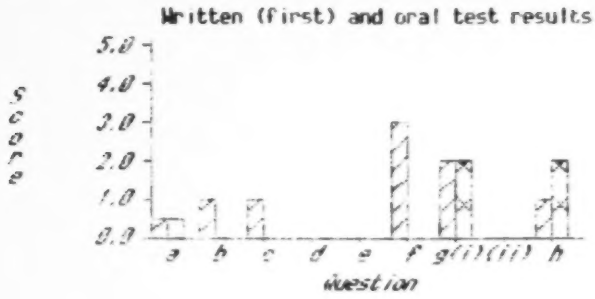
It was not possible to make such a diagnosis from the oral responses and it is hard to believe that some of the difference was not due to difficulties the student had with the oral mode of testing. Perhaps this was due to a lack of practice in this method. It is very unlikely that the student would have had any experience of this kind of oral test, particularly in economics.

Subject eight scored an 89% higher mark on the first, written test than on the oral. This is a larger difference than for subjects two and six, who also scored more highly on the first, written test. (The differences for them were 2.8% and 5.5% respectively).

Graph eight shows that on most (five) occasions, the scores were the same, on three occasions the written score was higher (questions b,c and f) and on one occasion the oral score was

higher (question h).

Graph 8 Subject Eight




The oral answer to question (b) was:

> "There is a lot of competition between other countries and, um, the other countries are keeping up with the times"

This did not answer the question, and so received no marks, but it might have been the starting point for follow-up questions from the interviewer, had they been possible. For example the statement that "the other countries are keeping up with the times" could be faint evidence that the student understands the relative competitiveness argument. A question such as "What do you mean by 'the other countries are keeping up with the times'", might have enabled the student to demonstrate more of an understanding of the issues without giving too much help. Perhaps the student could even have been assisted to answer the question by a restatement of the first sentence, with a stress on the word "reporter". The student might have demonstrated abilities recognised in the marking scheme for this question. The written response did answer the question to some extent, as it included the statement

> " She thinks there won't be much of it left."

So in her written response, the student did answer the question, but the second time round, in the oral, she did not. It could be that it was easier to misconstrue a spoken question than a written one, though of course the student did have the written question available in the oral.

The answers to question (c) provide an interesting comparison. In the written test subject eight made the following response:

> "they could have some machinery. but that would make people with skills lose their job, but that could keep it open if they got some machinery."

This gained one mark, as it was taken to represent an understanding of the mechanisation argument. In the oral, subject eight did not answer at all. This is surprising because she surely still understood the mechanisation argument, but did not demonstrate this in a response.

Similarly, in question (f), the written response was quite lengthy and suggested a number of reasons why there has been a sharp fall in the numbers employed in the motor vehicle industry. The response was as follows:

> "people are not intreasted in British cars, not enough people are needed as there is a lot more machinary than people so that could be why and there is much more compertion with deffrent modles over abroad."

Yet in the oral there was again no answer.

## Discussion of results

In this section the results of the Pilot Study are further analysed by question and by ability.
The question scores may reveal whether the oral increased opportunities for differentiation on particular questions or particular kinds of question.
This can be done by aggregating the scores of the whole sample on each question and comparing written and oral aggregate scores. As each pair of subjects had the same VRQ and each student in the pair took a different test second, the effect of the first test on the second might be counteracted in the aggregating process.
The results of this process are, however, to be viewed with care. Even if the VRQ scores are still valid after four years, they may well not be valid in terms of GCSE economics. It may also be the case that the factors which affect differences in performance between the two tests are completely independent of VRQ. So these pairings might be entirely inappropriate for the process of aggregation.
Table 3 contains an analysis of the results by question, and is generated from the scores in Table 1.

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Table 3
Analysis of results of oral and written tests by question.

| Question Score | Oral Answers | | Written Answers | | Higher | |
|---|---|---|---|---|---|---|
| | Total | Mean | Total | Mean | W/O | % |
| (a) | 9.5 | 1.19 | 10.0 | 1.25 | W | 5.0 |
| (b) | 7.5 | 0.94 | 10.0 | 1.25 | W | 32.9 |
| (c) | 11.0 | 1.38 | 15.0 | 1.89 | W | 36.9 |
| (d) | 4.0 | 0.50 | 6.0 | 0.75 | W | 50.0 |
| (e) | 2.0 | 0.25 | 6.0 | 0.75 | W | 200.0 |
| (f) | 12.0 | 1.50 | 22.0 | 2.75 | W | 83.3 |
| (g)(i) | 13.0 | 1.63 | 15.0 | 1.88 | W | 15.3 |
| (g)(ii) | 5.0 | 0.63 | 5.0 | 0.63 | - | 0.0 |
| (h) | 29.0 | 3.63 | 34.0 | 4.25 | W | 17.0 |

Key: "Total" shows aggregation of subjects scores for each question.
"Ave" shows total divided by number in sample.
"W/O" indicates whether average score was higher in written or oral test.
"%" shows the difference in the two averages as a percentage of the lower average.

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The table shows that in eight out of the nine questions, the mean score for the whole sample was higher on the written test than in the oral. The mean scores for question (g)(ii) were the same.
On average the written scores were 54% higher than the oral scores, over half as much again. The difference in means ranged from 5% on question (a) (only half a mark over the whole sample), to 200% on question (e) (four marks over the whole sample).

Table 4 Analysis of results in Table 3 using "t" test.

| Question | t value | Probability that oral and written scores are drawn from same population . (%) |
|---|---|---|
| (a) | 0.114 | above 50 |
| (b) | 0.320 | above 50 |
| (c) | 0.958 | 50 - 25 |
| (d) | 1.001 | 50 - 25 |
| (e) | 2.163 | 5 - 2.5 |
| (f) | 2.372 | 5 - 2.5 |
| (g)(i) | 1.081 | 50 - 25 |
| (g)(ii) | 0.0 | 100 |
| (h) | 0.506 | above 50 |

These results can be analysed further using a "t' test to discover whether the differences in mean scores on each of the questions is statistically significant. Table 4 shows that for 7 questions, the probability that the oral and written scores are drawn from the same sample is above one in four. For questions (e) and (f) the probability is between one in twenty and one in forty. The probability is lower, but the mean scores may still not be considered significantly different. This assumes that a difference in averages is significant only when it is more than three times the appropriate standard error.

So this analysis generates no evidence that orals of the kind used in the test increase opportunities for differentiation. In fact it would seem from the evidence presented in table 3 that the written tests differentiate better in almost all questions.

It is also worth considering the possibility that oral tests would be better where a question requires a longer, more discursive answer. In the paper used for this test, these questions have the highest marks.

Table 5 shows a comparison between the number of marks per question and the percentage differences in average scores. If the questions with the highest marks (and therefore arguably with the longest expected discussion of anwers) have the smallest differences in average scores between the two types of test, it may be possible to argue that the oral shows most promise for this kind of question.

Table 5 Ranking of differences in average test item scores by maximum marks per question

| Question | Maximum mark. | Ranking | Percentage increase in written average score over oral average (ranking in parenthesis). | |
|---|---|---|---|---|
| (h) | 12 | 1 | 17.0 | (6) |
| (f) | 6 | 2 | 120.0 | (2) |
| (c) | 5 | 3 | 36.9 | (4) |
| (a) | 4 | 4 | 5.0 | (8) |
| (b) | 3 | 5 | 46.8 | (3) |
| (g)(i) | 2 | 6= | 15.3 | (7) |
| (g)(ii) | 2 | 6= | 0.0 | (9) |
| (d) | 1 | 8= | 26.0 | (5) |
| (e) | 1 | 8= | 165.2 | (1) |

The four questions with the highest marks have the 6th, 2nd, 4th

and 8th highest average differences respectively. These figures would seem to suggest there is little if any relationship between the length of question and marks in the oral and written tests.

It could be that the kinds of questions chosen for the stimulus are not representative. They are only a part of one examination board's specimen examination paper and less formal follow-up questions were precluded by the nature of the test situation. The questions were also used on a small, and possibly unrepresentative, sample of students.

It could be that oral tests increase opportunities for differentiation within particular ranges of ability. For example, written tests may restrict so called "lower ability" students in demonstrating what they know, understand and can do. An oral, on the other hand, might be better at allowing some students to demonstrate their achievement.

The indicator of ability used here is the VRQ test. It was taken by the subjects in their first year at the school and, as was mentioned earlier, measured the students' ability in verbal reasoning, not their ability in GCSE economics.

One way of comparing performances in the two types of test across the ability range is to add the written scores and the oral scores for a particular range of students. The differences in scores can be calculated and compared with differences in scores for other ranges of ability.

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Table 6 Comparison of aggregate oral and written scores for pairs of students by ability.

| Pair | Subjects | Agg. oral | Agg. Written | % diff. | "t" value | Probability % |
|---|---|---|---|---|---|---|
| 1 | 1/2 | 33.5 | 38.5 | 14.9 | 0.44 | above 50 |
| 2 | 3/4 | 21.5 | 24.0 | 13.9 | 1.34 | 25 - 10 |
| 3 | 5/6 | 33.5 | 43.5 | 29.8 | 0.64 | above 50 |
| 4 | 7/8 | 0.0 | 17.0 | * | 2.04 | 10 - 5 |

Note: "Subjects" shows subject numbers from table 1.
"Agg. oral" shows aggregate oral oral scores for each pair.
"Agg. written" shows aggregate written scores for each pair.
"% diff." shows the differences in the two aggregates as a percentage of the lower aggregate.
"Probability %" shows probability that the oral and written scores come from the same population.
* Not possible to calculate percentage difference in marks

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Table 6 shows the results of this kind of analysis for the smallest range of ability, two students. It shows that pairs 3 and 4 have the higher percentage difference in aggregate scores. This might be interpreted to mean that the kind of oral used hindered "lower ability" students more. However, the probability that the two sets of aggregate scores are drawn from the same population is always over 5%, and in two cases over 50%, so the differences in the scores cannot be considered significant.

A comparison can also be made between the top and bottom halves of the ability range. Table 7 shows the results of this analysis.

Table 7 Comparison of oral and written scores for halves of the sample by ability.

| Half | Subjects | Agg. oral | Agg. written | % diff | "t" value | Probability % |
|---|---|---|---|---|---|---|
| 1 | 1-4 | 55.0 | 62.5 | 13.6 | 0.40 | above 50 |
| 2 | 5-8 | 38.0 | 60.5 | 59.2 | 1.17 | 50 - 25 |

As would be expected, having analysed the results of table 6, the percentage difference is higher in the lower half of the ability range (13.6% difference in the higher ability half compared to a 59.2% difference in the lower ability half). This indicates that the oral performance was comparatively worse for the "lower ability" students.

However, the "t" test reveals that the differences in aggregate scores for the two modes of test, on which this analysis is based, are not statistically significant. In both samples the probability that the written and oral scores are drawn from the same population is over one in four.

This analysis by ability is, as has already been pointed out, based on a measure of ability which could well be less than valid for general ability (the test was done four years previously and may not have been valid then). It is also based on scores generated from only part of a specimen test, using a possibly dubious interpretation of a preliminary draft marking scheme.

A more qualitative analysis of the students' performances is less objective but could be be more illuminative for the purposes of this study.

This analysis reveals that the most dramatic differences in performance are seen in subjects seven and eight, the "lowest ability" students. Both scored no marks on the oral test but gained more marks in the written test.

Neither student answered questions (c), and (f) in the oral test but both put forward an answer in the written test. Question (c) is:

> "How might cutting the workforce have helped to keep parts of the shipbuilding industry going in the North?"

Subject seven answered this question in the following way:

> "Cutting the workforce has help because the people are working hard and there is less wages to be paid out so they can by machines and build ships faster and better."

This answer provides some evidence of an appreciation of the relationship between number of workers and costs of production. It also shows evidence of an understanding that cutting the workforce can enable the industry to use more machines. The answer received two marks.

Subject eight's answer did not provide evidence that the student understood the relationship between workers and costs but it did show an understanding of the mechanisation argument. The answer was as follows:

> "they could have some machinery. but that would make people with skills lose their job, but that could keep it open if they got machinery."

Both these answers demonstrate a level of economic understanding and it is quite possible that the students "knew, understood and could do" more in relation to this question. Subject seven, for example, said in his answer

> "Cutting the workforce has help because the people are working hard."

This idea is not mentioned in the data, so it is evidence of his own thinking. Does it mean he thought that the workers who were

left were likely to be motivated by the fear of losing their own jobs ? Or does it mean he thought the cut in the workforce would be made by making the older and/or less hard working workers redundant ? It is only possible to speculate, and usually such a comment would be ignored because of the difficulties of interpretation.

The poor quality of written expression of this "low ability" student almost certainly prevented him demonstrating his full understanding of economics. Unfortunately, further written evidence cannot be provided given the written exam format.

The same can be said for the other "low ability" student, subject 8. The argument was poorly expressed and did not answer the question but it might provide clues to abilities for which there is at present no evidence. This student might well have understood the relationship between workers, machines and costs of production and there could be an indication of this in the juxtaposition of comments about machinery, workers losing their jobs and keeping the industry open.

It would be most useful to go back to these students and ask supplementary questions which might provide further evidence. Here, perhaps, is a role for an oral - to ask "follow-up" questions to supplement a written response.

This is the kind of use envisaged by the London and East Anglian Board in their Economics GCSE Syllabus B. Here orals can be based on a piece of coursework chosen for discussion by the candidate. The materials for discussion are seen by the student before the oral test begins.

In other words the oral might not be *better* than the written form of assessment, but it may be used in a *complementary* way, with written assessments, to increase opportunities for differentiation for students whose written responses inadequately express their true understanding.

This may not only be true for lower ability students. Those with better written expression may also not demonstrate their full knowledge, skills and abilities in a written answer. For example subject 5, who scored highest in the written tests, gave some answers where it was difficult to interpret the response. In question (f), the second part of her answer was as follows:

> "Along with this not as many of are cars are bought out the country any more, also Britain emports a lot, so not as many cars to be made, hence a loss of jobs."

The written expression was a little weak and the term "emports" is probably imports because the export argument was already discussed in the previous sentence. But more than one interpretation of this evidence is possible, and an examiner would be generous to award full marks for what might be a less than full understanding of two different reasons for the fall in numbers employed in the motor vehicle industry. However, follow up questions could well have provided more conclusive evidence.

So far this section has concentrated on performances, not the questions asked in the tests. It could be that some questions were constructed in such a way as to make them inaccessible for some students. This could be the reason why the two "lowest ability" students did not answer questions (c) and (f).

Both these questions have reasonably long and complex sentence construction. The oral may have made understanding of these questions more difficult because there was a pressure on the students to answer quickly without re-reading a question they might not have understood first time.

As well as sentence construction, terminology could be a barrier to differentiation, and orals may be helpful in this respect. One particular oral answer highlighted this issue. Subject eight was faced with question (e) which is:

> "Look at the figures for unemployment. What happened to the

percentage of workers unemployed in England and Wales as a whole between 1977 and 1984 ?"

The student's answer was:

"We haven't done percentages in maths - we haven't."

The nature of the oral used in the tests prevented any help being given, so the next question was asked. However, there is an opportunity in an oral to give help by defining terms which students do not understand. This may increase opportunities for differentiation, though the level of help would have to be taken into account when describing or assessing the performance.

Conclusions

The intention of the study was to find out whether

"oral assessment will enable students to demonstrate more of what they know, understand and can do in GCSE economics than written assessment."

The evidence discussed in the previous sections suggests that in terms of achievement of the objectives of GCSE Economics, this kind of oral does not enable students to demonstrate more. In fact it would seem to enable some of them to demonstrate much less of what they know, understand and can do.

However, there are at least five factors in the research design which may have affected the validity of the results and the conclusions which can be drawn from them.

First, the quasi-experimental method chosen to isolate the effects of the two modes of testing may have had an uncontrolled effect. The possible "practice effect" on the second exposure to the stimulus is very difficult to isolate, particularly given the small size of sample used. Pairing the subjects by ability and then alternating mode of first and second test throughout the sample could have counteracted the effects to some extent. However, the interaction between written/oral may well be complex. Therefore one form of testing may have provided a better preparation for the second form of the test.

Second,in analysing the data one should keep in mind that the sample was unfortunately, by necessity, rather small. Though an attempt was made to stratify the students by ability, another eight students from the same population could well have behaved entirely differently. For example, the two students with the lowest VRQ scores whose performances affected the results significantly, could well have performed differently from other students with the same VRQ.

The sample was selected from an intact class and it is difficult to know how representative this class is of the whole population of 15 year olds in the UK. Consequently it is dangerous to generalise from these results.

Third, though every effort was made to standardise procedures, it is unlikely that the level of concentration and skill of the tester remained constant throughout the testing procedure. The first introduction and oral took place at 9.30 in the morning and the last one started five and a half hours and seven tests later. Even if the words spoken remained the same for all subjects (there is evidence that for subject seven at least they were not the same), the speed and intonation of delivery will almost certainly have varied. The social interaction between interviewer and interviewee cannot be standardised, and may have had an effect on the results.

The fourth factor concerns the assessment materials used in the tests. The production of materials for assessing GCSE economics was at its first and most tentative stage when the testing was carried out. All six GCSE boards had produced specimen examination papers, but the choice was limited to questions

which tested an area of content covered to some extent in lessons and which the subjects had not seen before. This excluded questions from the London and East Anglian Board and the Southern Examining Group.

Questions from two of the boards were not available, and so the choice was between questions produced by the Midland Examining Group and the Northern Examining Association. In the end the NEA question was chosen as being one which might stand on its own in an assessment lasting half an hour. The question may not be valid on its own, in isolation from the rest of the questions on a paper which is intended to last two and a half hours. There could well be other questions which are much more suited to an oral presentation and response.

The final factor is the marking scheme used to assess responses. The scheme put forward by the Board is a preliminary draft, subject to amendment in the light of candidates' performances. But results of amendments of the kind undertaken by an examination board were not available and the scheme was used without them. It also had to be detailed and interpreted. This may have further affected its validity. Finally, responses had to be assessed, and though every effort was made to be as uniform as possible, it is likely that some inconsistency occurred.

Despite the limitations of the research design, interesting issues have been raised. There would certainly seem to be a good deal of scope for further research in this area.

Written question papers given and answered orally do not appear to increase the opportunity for differentiation, and though further research might attempt to check the validity of this fairly tentative conclusion, this would not seem to be a particularly worthwhile avenue for further work.

Other areas are more worthy of investigation and four are outlined here. By knowing more about these issues it may be possible to have assessment techniques which increase opportunities for differentiation in GCSE economics. They are concerned with the formality of tests, the possible use of "follow-on" or supplementary questions, the types of stimulus used and the training of assessors.

The tests used in the research were set up and used in a particularly formal way. The rooms used had the look and feel of traditional public examination rooms. The question papers were made to look as much like Board examinations as possible and the procedure for the testing was formally administered. The assessor took the role of an authority figure, giving instructions and facing students across a desk.

This kind of atmosphere may have reduced the opportunity for differentiation in the oral assessments. There was a feeling that students felt they were under pressure to give a quick response, rather than to weigh the evidence carefully before giving a more considered answer. Making calculations in such an atmosphere could also be a difficult experience for some students.

Perhaps this effect could be reduced by allowing access to the data beforehand, so that the pressure of the "unseen" element is removed. This might also put interviewer and interviewee on a more equal footing. However, problems may be caused if students have access to material outside examination conditions.

Another effect of the very formal relationship between interviewer and interviewee was that students probably felt they could not ask questions of the "questioner". This was really one of the unwritten rules of the test. In conversation, asking questions of a speaker is a natural way of clarifying and confirming meaning, but in the test situation this normal exchange was precluded. It is impossible to know the effect of

this on the quality of the answers. Further research could investigate the effects of the formality of test situations on student performances.

The second issue concerns the use of supplementary or "follow-on" questions. There are a number of situations when it would have been interesting to ask follow-up questions. Five instances can be identified.

First, it would be useful to pick up the thread of the argument when a student has forgotten what s/he was saying, perhaps after referring to some data or when a side issue has been discussed. This also might be necessary when a long answer has been given. In an oral it is not possible to read back over the response, as one can when a written answer has been given.

Second, it would be useful to explore vaguely expressed ideas further. This can perhaps be done by asking a question like, "What do you mean by... other countries are keeping up with the times'?" It could also be achieved by restating the reason and the relevant part of the question, for example "Why does the reporter think.... other countries are keeping up with the times'?"

Third, it would be useful to encourage students to give extended answers to a question. This could be done by asking a question like: "Are there any other reasons the reporter gives for 'the decline in shipbuilding in the North'?". Another approach could be to summarise understanding of previous parts of the answer with a question like: "You have said that 'other countries have reduced prices', but are there there any other reasons the reporter gives for 'the decline in shipbuilding in the North'?"

Fourth, where a student has not answered the question or appears to have interpreted it incorrectly, the question could be repeated, but with a stress on the part which the student had not paid enough attention to. For example:

"Yes, but 'what happened to the percentage of workers unemployed in England and Wales *as a whole* between 1977 and 1984'?"

Finally, follow-up questions could be used to identify any words or phrases, used in a question, which a student did not understand. This could be done by asking a question like: "What do you think is meant by 'decline'?" Following the answer, further action could be taken to assist the student.

Great care would be required in giving assistance, otherwise the student may learn from the questions. Further research could discover whether follow-up questions could increase opportunities for differentiation while maintaining the reliability of the tests.

The third issue which may be an interesting area for further research concerns the type of stimulus used in oral assessment. If it is used to enable students to demonstrate more of what they know, understand and can do then the material should be accessible to the student. In an oral, long extracts of text may not be particularly useful and visual material such as maps, diagrams or pictures may be more helpful to the student.

As was mentioned earlier, stimulus material could be given to the student before the test, so that they have an opportunity to become familiar with it. It might even be possible to allow students to bring material of their own with them, so they could refer to it in support of arguments during the conversation.

The final issue concerns the in-service training of interviewers. Orals are not a familiar mode of assessment in economics education at the present time. It is likely that teachers who are to become assessors will have little, if any, experience in carrying out oral tests.

It would be interesting to know teachers' reactions to this development and their ideas about the kinds of training required. Teachers are likely to ask a number of questions which

would need to be answered. How, for example, can an atmosphere be created which enables students to achieve their best performance? How do you know when to ask the next question? What kinds of follow-on questions will be most useful? What guidance should students be given in selecting and analysing stimulus material?

The way forward for research in this area is to help in finding answers to questions like these. Orals may then take their place alongside the other forms of assessment used in GCSE economics.

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**B15** Read the newspaper report and the figures for unemployment given below and answer the questions which follow.

# END OF THE LINE FOR NORTHERN SHIPBUILDERS

**Percentage of workers unemployed by region in England and Wales:**

| | *1977* % | *1984* % |
|---|---|---|
| North | 8 | 18 |
| Yorkshire/Humberside | 6 | 14 |
| North West | 8 | 16 |
| East Midlands | 5 | 12 |
| West Midlands | 6 | 15 |
| Wales | 8 | 16 |
| East Anglia | 5 | 10 |
| South East | 5 | 9 |
| South West | 7 | 11 |

*Source: Dept of Employment (adapted)*

For a long time the shipyards of the North have sent new ships to all parts of the world. All this could soon be over, writes Sue Jones.

Overseas orders have been lost to countries like Sweden and Japan. In these countries new machinery and good labour relations have kept costs down and delivery times short.

Orders from British Shipowners have also been lost because of foreign competition. The decline in Britain's own shipping fleet has made things even worse.

The industry has introduced new ways of working and up-to-date machines and the work force has been cut. This has helped to keep parts of the industry going. However, other countries are also keeping up with the times. The future looks gloomy.

The North is not the only region that has problems. In many regions unemployment doubled between 1977 and 1984 (see percentage unemployed). In the West Midlands, for example, changes in the motor vehicle industry have led to a sharp fall in the numbers employed.

Everyone knows that the loss of jobs, not only in shipbuilding, but also in coal-mining and iron and steel, makes the problems in the North particularly bad.

**(a)** What reasons does the reporter give for the decline in shipbuilding in the North? (4)

**(b)** What does the reporter think about the future of Britain's shipbuilding industry? Why does she think this? (3)

**(c)** How might cutting the workforce have helped to keep parts of the shipbuilding industry going in the North? (5)

**(d)** The decline in shipbuilding is one reason for the high percentage of unemployment in the North. State **one** other reason the reporter gives. (1)

**(e)** Look at the figures for unemployment. What happened to the percentage of workers unemployed in England and Wales as a whole between 1977 and 1984? (1)

(f)

In the West Midlands changes in the motor vehicle industry have led to a sharp fall in the numbers employed.

Suggest possible reasons why this happened.

(g)

Governments have tried to give people in regions with a high percentage of unemployment more chance of finding jobs by trying to attract new firms to those regions.

Look at the unemployment figures for the North, the North West and Wales given in the newspaper report.

(i) Explain whether you think this policy has succeeded.

(ii) Give **one** reason to say why you think it has succeeded or failed.

(h)

Until recently Jim Smith was a welder in a northern shipyard. His wife and two young children were born and bred in the town. He had worked there for 15 years until the yard closed. Local jobs are hard to find with one in five workers looking for a job. With the decline in mining and iron and steel, Jim's chances of a welding job locally are almost nil.

The Smith's have an important choice to make:

1. They can stay where they are and take their chances, **or**
2. They can move to the south east where they know welding jobs are easier to find.

Outline the kinds of things the Smith family would have to consider before reaching a decision that is best for them.

**B15 (a)** Comprehends the reasons given in the data (overseas competition and declining shipping fleet). *(2)*

Explains the implied relative failure of UK firms to organise cost effective production and to deliver on time. *(+2)* *(4)*

**(b)** Correctly comprehends the writer's gloomy prediction. *(1)*

Shows an understanding that UK demand for ships is falling; UK firms to improve relative competitiveness, have to be ahead of others and not just keeping pace. *(+2)* *(3)*

**(c)** Show an elementary appreciation of relationship between number of workers, costs of production and output shown. *(2)*

Gives a clear explanation of relationships using appropriate terminology. *(+3)* *(5)*

**(d)** Coal mining or iron and steel. *(1)*

**(e)** The unemployment percentage increased. *(1)*

**(f)** UK car industry unable to withstand overseas competition due to failure to innovate, poor labour relations record and working practices. Rationalisation of the industry in the 1980s, introduction of new technology and weakening of union bargaining position allowed management to shed labour.

Candidates are not required to show detailed knowledge of the motor vehicle industry.

Some attempt to provide a plausible explanation of the decline. *(2)*

An attempt to apply the criteria used in the shipbuilding industry to the motor vehicle industry. *(4)*

A well argued response which provides clear reasons and use of appropriate criteria to justify them. *(6)* *(6)*

**(g)** (i) Some assessment indicating success or failure. *(1)*

Data used to support conclusion. *(+1)* *(2)*

(ii) Some awareness of difficulties in persuading new firms to establish away from South East/regional policy. *(1)*

Illustrations to exemplify response. *(+1)* *(2)*

**(h)** No one answer is expected in response to this question. A range of responses should reflect the following abilities.

Show some ability to:

recall knowledge about influences on labour mobility and regional differences;

apply data provided in the stimulus to the problem;

use this knowledge to explain factors appropriate to this case. *(4)*

In addition shows an ability to:

distinguish between the advantages and disadvantages of one course of action in relation to the other and to categorise the different factors;

examine the possible implications of each course of action for different members of the family. *(+4)*

In addition shows an ability to:

analyse the meaning of the term "best" from an economist's viewpoint. *(+4)* *(12)*

**Turn over**